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Inhibition of tumor angiogenesis by HMGB1 A box peptide.

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High mobility group box 1 protein (HMGB1) is a highly conserved, ubiquitous non-histone nuclear protein, which participates in maintaining nucleosome structure, regulation of gene transcription, and modulating the activity of steroid hormone receptors. Substantial evidence demonstrated that HMGB1 could be secreted into the extracellular milieu, acts as a proinflammatory cytokine and mediates the downstream inflammatory responses in endotoxemia, arthritis and sepsis. Recently, several reports suggested that HMGB1 plays a key role in tumor angiogenesis through multiple mechanisms, including up-regulation of proangiogenic factors, promoting endothelial progenitor cells homing to ischemic tumor tissues and induction of endothelial cell migration and sprouting. And blockade of HMGB1 binding to the receptor for advanced glycation end products (RAGE) with anti-HMGB1 antibody, soluble RAGE or anti-RAGE neutralizing antibody has been proved to inhibit angiogenesis efficiently. Since HMGB1 A box peptide could antagonize the HMGB1 whole length protein by competitively binding to RAGE and has been considered as a HMGB1 specific antagonist, we postulate that the HMGB1 A box peptide could function as an anti-angiogenic agent to inhibit tumor angiogenesis. In our opinion, if the hypothesis proved to be practical, HMGB1 A box peptide could be widely used in clinical settings to treat malignant tumors.

PMID: 17630223 [PubMed - indexed for MEDLINE]

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